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## Stranded Superconducting Cable of Improved Design

A lightweight, stable, high-current superconducting cable has been developed and tested in a superconducting (liquid helium cooled) magnet made with the cable. The design features the use of a substantial amount of aluminum wire interspersed with the superconductor strands. The advantages of aluminum are its low magnetoresistance coefficient, and, consequently, its higher electrical conductivity than copper at 4.2°K over a wide range of magnetic fields; its ability in the highly pure state to self-anneal at room temperature, so that reductions in electrical conductivity due to the winding stresses are avoided; its light weight; and its low thermal capacity. The latter results in reduced cooldown costs.

### Notes:

1. The principles applied to this cable and magnet design are applicable to a wide range of superconducting cables and magnets.

2. Inquiries concerning this innovation may be directed to:

Office of Industrial Cooperation  
Argonne National Laboratory  
9700 South Cass Avenue  
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Reference: B70-10070

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### Patent status:

Inquiries concerning rights for commercial use of this innovation may be made to:

Mr. George H. Lee, Chief  
Chicago Patent Group  
U.S. Atomic Energy Commission  
Chicago Operations Office  
9800 South Cass Avenue  
Argonne, Illinois 60439

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